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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,515	07/03/2002	Shigeo T. Oyama	07820001AA	7837
7590		01/25/2005	EXAMINER	
Michael E Whitham		WOOD, ELIZABETH D		
Whitham Curtis & Christofferson		ART UNIT		
11491 Sunset Hills Road Suite 340		PAPER NUMBER		
Reston, VA 20190		1755		
DATE MAILED: 01/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,515

Applicant(s)

OYAMA, SHIGEO T.

Examiner

Elizabeth D. Wood

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,9-13 and 40-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,9-13 and 42-43 is/are rejected.
- 7) ☒ Claim(s) 40 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Specification

The examiner has not checked the specification to the extent necessary to determine the presence of **all** possible minor errors (grammatical, typographical and idiomatic). Cooperation of the applicant(s) is requested in correcting any errors of which applicant(s) may become aware of in the specification, in the claims and in any future amendment(s) that applicant(s) may file.

Applicant(s) is also requested to complete the status of any copending applications referred to in the specification by their Attorney Docket Number or Application Serial Number, **if any**.

The status of the parent application(s) and/or any other application(s) cross-referenced to this application, **if any**, should be updated in a timely manner.

Election/Restriction

The cancellation of non-elected claims 14-39 is hereby acknowledged.

Claim Rejections - 35 USC § 112

The previous rejections under 35 USC 112 are withdrawn in view of the amendment filed November 18, 2004. However, the following new rejection is applicable:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 42 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim is confusing in that it is unclear as to whether the composition is further defining "M", or if the Mo is an additional component. Clarification is required.

Claims 1, 3-7, 9-13 and 43 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 4,454,246 or U.S. Patent No. 4,359,406, both to Fung.

The instantly claimed composition is a single or binary metal phosphide on a support material.

The Fung references disclose supported binary metal phosphorus compounds that anticipate the herein claimed composition. See particularly column 3, line 16 – column 4, line 43 of both of the Fung references.

Alternatively, these three references can be considered to differ in scope from the instant invention in that the references disclose additional metal phosphides outside the scope of the instant claims. The instantly claimed invention would have been obvious, however, because the skilled artisan is more than capable of selecting one or two metals from a specifically disclosed group of metals with the expectation of success.

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Applicant argues with respect to this rejection that although Fung discusses Group VIII metals generally, the "synthesis method described is inappropriate for the non-noble metals".

This line of reasoning is not convincing to the examiner. Applicant should note that the Fung references specifically recite iron, cobalt and nickel phosphides. The examiner does not have the authority to entertain arguments that call into question the validity of the disclosure set forth in these U.S. Patents. As an additional note, however, applicant should note that the Fung references employ temperatures up to 650C for their process. Accordingly, applicant's data provided in the declaration using temperatures below 550C and 560C to produce phosphides fail to demonstrate any distinction from the reference processes. Moreover, applicant should note that he has submitted other documentation on this record such as the Goodenough article, which indicates phosphides will not be produced below 850C. This article would call into question the temperatures that applicant discloses as sufficient. Applicant further references a Wang et al. article that indicates "major reduction at 550C, but completion required 690C". This would conflict with the information in the declaration showing phosphides at 550 and 560C.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as obvious over the Journal of Catalysis article (XP009009979) submitted by applicants in view of either U.S. Patent No. 4,454,246 or U.S. Patent No. 4,359,406, both to Fung.

The instantly claimed composition is a single or binary metal phosphide on a support material. The article discloses alumina supported FeP.

The article differs from the claimed invention in the use of an alumina support, rather than another support material.

The Fung references are relied on for the teaching of equivalence of known high surface area supports in the area of metal phosphide catalysts.. It would have been obvious to one skilled in the art to select any known support, so to maximize surface area and conversion and minimize cost. See the first full paragraph of column 4 of the references.

Absent any convincing evidence to the contrary, the examiner considers that the selection of appropriate support materials would have been within the skill of the artisan.

Claims 1, 3-7, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,367,137 to Antos et al.

Antos et al. disclose catalytic composites comprising supported phosphorus components that are taught to be a phosphide with a cobalt component, substantially as claimed herein by applicant.

Antos et al. differ from the subject invention in that the scope of Antos et al. and the instant claims is different. Antos et al. require a number of other components not claimed by applicant. However, the open claim language of "comprising" does not exclude such components.

With respect to this rejection, applicant argues that Antos is uncertain whether a phosphide has formed, and the temperature employed by Antos is insufficient to result in phosphide formation. This is not convincing because the articles provided by applicant also call into question whether or not the instant invention results in a phosphide. Specifically, the Goodenough article indicates phosphides will not be produced below 850C. This article would call into question the temperatures that **applicant** discloses as sufficient in his specification and declaration. Applicant further references a Wang et al. article that indicates "major reduction at 550C, but completion required 690C". This would conflict with the information in the declaration indicating phosphide formation at 550C and 560C.

Applicant finally asserts that with respect to the amended claims, they have discovered a combination of metals and a combination of supports that were not previously recognized by the prior art. This is not convincing. In the first place, there is no evidence of such "recognition" by the applicant in the instant specification, which teaches alumina to be an effective support for this purpose. Secondly, the prior art indicates equivalence between the known supports, and the information provided in the declaration is insufficient to establish superiority of **all** of the combinations of supports

and metals set forth in the instant claims and is therefore not even remotely commensurate with the claims under examination. Accordingly, the preponderance of the evidence on this record supports the conclusion of obviousness.

Claim Objections

Claims 41-41 are objected to as being dependent on a rejected base claim. They would be allowable if rewritten in independent form to contain all of the limitations as set forth in the independent claim.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

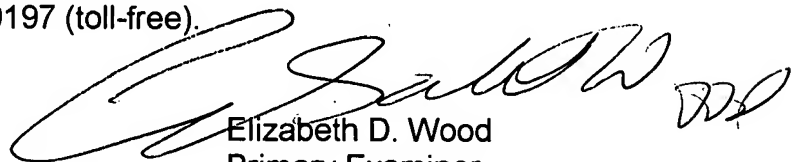
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth D. Wood whose telephone number is 571-272-1377. The examiner can normally be reached on M-F, 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on 571-272-1364. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Elizabeth D. Wood
Primary Examiner
Art Unit 1755

edw